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REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK PLAN

FORMER PLAINWELL, INC. MILL PROPERTY
PLAINWELL, MICHIGAN

Prepared For:
Weyerhaeuser Company

JULY 2009

REF. NO. 056394 (4)

This report is printed on recycled paper.

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LIST OF ACRONYMS

CRA	Conestoga-Rovers & Associates
FS	Feasibility Study
FSP	Field Sampling Plan
HASP	Health and Safety Plan
MDEQ	Michigan Department of Environmental Quality
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/ Quality Control
QMP	Quality Management Plan
QSM	Quality System Manual
RA	Remedial Action
RAOs	Remedial Action Objectives
RI	Remedial Investigation
RPM	U S EPA Remedial Project Manager
SAP	Sampling Analysis Plan
SOW	Statement of Work
U S EPA	United States Environmental Protection Agency

1 0 **INTRODUCTION**

This Remedial Investigation (RI)/Feasibility Study (FS) Work Plan for the Former Plainwell, Inc Mill Property (Site) located at 200 Allegan Street, Plainwell, Michigan, has been prepared by Conestoga-Rovers & Associates (CRA) on behalf of Weyerhaeuser Company (Weyerhaeuser) for to the United States Environmental Protection Agency (U S EPA) Region 5. This RI/FS Work Plan is being submitted in accordance with Statement of Work (SOW) for the RI and FS, as presented in Appendix A, and the terms of the consent decree for the Design and Implementation of Certain Response Actions at Operable Unit #4 and the Plainwell, Inc Mill Property of the Allied Paper, Inc /Portage Creek/Kalamazoo River Superfund Site (Consent Decree), which became effective February 22, 2005. The Site location is presented on Figure 1.1. A Site plan showing current and historical Site features is provided on Figure 1.2.

To facilitate the evaluation of Site related information, the Site has been subdivided into three areas based on their locations and noted historical environmental impacts. The three areas are as follows:

- Area 1 - Former wastewater sludge dewatering lagoon and aeration basin area,
- Area 2 - Mill building Area, and
- Area 3 - North central portion area of the Site

The boundaries of the three areas is provided on Figure 1.3. As defined in the Consent Decree, the Site includes areas up to the top of the Kalamazoo River bank. Areas associated with the Kalamazoo River (i.e., beyond the top of the riverbank) and the mill race are not included in the scope of the RI/FS Work Plan and are being addressed as part of the river remedial activities.

1 1 **PURPOSE OF THE REMEDIAL ACTION/ FEASIBILITY
STUDY WORK PLAN**

The overall objective of the RI/FS Work Plan is to provide a scope of work to identify and investigate any environmental concerns regarding prior use of the Site. As outlined in the SOW, *The purpose of the RI program is to provide the data necessary to evaluate current and potential risks to human health and ecological receptors*. As provided in the SOW, the objectives of the RI/FS for the Site are as follows:

To determine the nature and extent of the contamination to assess risk and support development and evaluation of remedial alternatives – Collect the data necessary to adequately characterize the nature and extent of contamination at the Site, consistent with the requirements of the National Oil and Hazardous Substance Pollution Contingency Plan (March 8, 1990) and the Consent Decree,

To evaluate potential risk – Assess any current and potential risks to human health or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, and

To develop and evaluate remedial alternatives – Develop and evaluate alternatives, consistent with reasonably anticipated future land use(s) at the Site, for remedial action to prevent, mitigate, control, or eliminate risks posed by any release or threatened release of historical contaminants present at or from the Site

1 2 SITE HISTORY

The following subsections provide a brief overview of pertinent background information. All background information was collected from historical reports reviewed by CRA. Specific documents are referenced in Section 6.0.

1 2 1 HISTORICAL MILL OPERATIONS

The Site has been subject to many historical reports outlining historical operations, including previous Phase I and Phase II Environmental Site Investigations.

The historical information indicates that various activities and buildings are located at the Site. The buildings and activities include support buildings, paper mill operations, on-Site parking, wastewater treatment, waste storage, containment of coal, containment of fuel oils, containment of hydraulic oils, and general manufacturing related activities. To aid in the manufacturing and treatment processes, Former Quality Products building and Specialty Mineral Inc. building, developed materials used to support operations. These operations were located on the south central portion of the Site in Area 3.

Historical paper mill operations included manufacturing of paper products and recycling of paper materials including the process of deinking. Wastewater sludge was

removed from the facility and processed through a series of clarifiers before entering the former wastewater lagoons for dewatering. Once the paper sludge was dewatered, the material was then removed from the Site for disposal at the 12th Street Landfill Site located in Otsego Township, Michigan.

1.2.2 HISTORICAL OWNERSHIP AND OPERATIONS

Within Area 2, the papermaking operations began as early as 1884 and continued until Site closure in 2000. During this time period ownership was passed between various organizations, including Weyerhaeuser who owned and operated the mill for approximately nine years (1961 to 1970). After bankruptcy was filed by the Simpson Plainwell Paper Company in 2000, the City of Plainwell purchased the property on August 31, 2006 in hopes of redeveloping the Site. A summary of previous owners is provided below.

Dates (approximate)	Property Ownership
(at least) 1884	Lyon Paper Mill
1891 to 1856	Michigan Paper Company
1956 to 1961	Hamilton Paper Company
1961 to 1970	Weyerhaeuser Company
1970 to 1985	Phillip Morris (operated the Nicolet Paper Company)
1985 to 1987	Chesapeake Corporation
1987 to 2000	Simpson Plainwell Paper Company
2006 to present	City of Plainwell

1.3 FUTURE LAND USE

After completion of the RI/FS and required remedial activities the City of Plainwell will initiate redevelopment of the Site. This will include residential and commercial land uses throughout the property. The goals of the redevelopment are the following:

- To promote community gathering,
- Provide residential, commercial, recreation, civic uses, and densities,
- Promote commerce and tourism,
- Provide access to the Kalamazoo River front, and
- Maintain the historical significance of the paper mill

Further details of the redevelopment will be addressed with the City of Planwell after RI/FS and remedial activities have been completed

1 4 PROJECT ORGANIZATION AND MANAGEMENT

The project manager will provide overall management of the project and be in the principal contact to the federal, state and local government officials. The remedial activities will be managed by CRA, under the direction of Weyerhaeuser.

Prior to March 2009, RMT was responsible for the overall management of the project under the direction of Weyerhaeuser. On March 12, 2009, the US EPA conditionally approved CRA as the supervising contractor upon review of CRA Quality System Manual (QSM). The project organization chart is provided on Figure 1.3.

The US EPA requires that all environmental monitoring and measurement efforts mandated or supported by the US EPA participate in a centrally managed quality assurance program. Any party generating data under this program has the responsibility to implement minimum procedures to ensure that the precision, accuracy, completeness, and representativeness of the data are known and documented. To ensure that this responsibility is met uniformly, a written Quality Assurance Project Plan (QAPP) must be prepared for each project.

The Multi-Area QAPP created for the Site presents the objectives, organization, functional activities, and specific quality assurance and quality control activities associated with implementing the project including project organization. The QAPP also describes the specific protocols that will be followed for sampling, sample handling and storage, chain-of-custody, and laboratory analysis. The Multi-Area QAPP will be modified in the future as other sampling programs are identified or defined as discussed in Section 3.2.2.

2.0 ACCESS AGREEMENTS

The Former Plainwell, Inc Mill Property is currently under the ownership of the City of Plainwell. During the Site RI activities ownership of the Site will remain with the City of Plainwell. The City of Plainwell has granted access to the Site to Weyerhaeuser and their consultants/contractors to complete the RI/FS activities.

3 0 SCOPE OF WORK

As outlined in the SOW for the Site dated August 14, 2006, the following sections outline the activities to be completed as part of the RI/FS investigations. A copy of the SOW is provided in Appendix A.

On August 4, 2008 Weyerhaeuser proposed to the U.S. EPA a phased approach for the completion of RI/FS activities. In consultation with the Michigan Department of Environmental Quality (MDEQ), the U.S. EPA approved this approach on August 6, 2008.

To date, Phase I of the RI/FS Work Plan has been completed as outlined in Section 3.1. The following is a summary of tasks required for completion of the RI/FS for the Site.

3 1 TASK 1- REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK PLAN

The objective of the RI/FS Work Plan is to identify the tasks that will be performed to collect the necessary data to meet the RI/FS objectives as outlined in Section 1.1. Phase I of the RI included the following:

- Submittal of the Draft RI/FS Work Plan to the U.S. EPA for review, September 2008, by RMT, and
- Completion of the Phase I Groundwater and Coal Tunnel Assessment Work Plan submitted in February 2009, by RMT.

After review of the above reports, and those referenced in Section 6.0, the Phase II RI Work Plan was prepared by CRA to address the remaining RI field sampling and analysis activities. This constitutes the final phase of the RI. The Phase II RI Work Plan was submitted to the U.S. EPA in May 2009 for review. In July 2009, CRA submitted the revised Phase II RI Work Plan to the U.S. EPA.

3 2 TASK 2- SAMPLING AND ANALYSIS PLAN

The objective of the Sampling and Analysis Plan (SAP) is to specify locations, numbers, and types of samples that will be collected during the RI to satisfy all identified data

gaps outlined in the RI/FS Work Plan. The SAP will contain the Field Sampling Plan (FSP), QAPP, Site Health and Safety Plan (HASP), Quality Management Project Plan (QMP), and schedule.

3.2.1 FIELD SAMPLING PLAN

The FSP ensures that sample collection and analytical activities are conducted to ensure that technically acceptable protocols are being used and the data meets the Site-specific data quality objectives. As indicated in the SOW, all sampling and analyses performed must meet the U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain-of-custody procedures.

The FSP outlines all activities in relation to characterization of waste materials, hydrogeologic investigation, soil investigation, air investigation, and treatability studies.

In November 2008, RMT submitted to the U.S. EPA a FSP. In June 2009, CRA submitted to the U.S. EPA amendments of the FSP to include activities outlined in the Phase II RI Work Plan and CRA's Standard Operating Procedures.

3.2.2 QUALITY ASSURANCE PROJECT PLAN

The Multi-Area QAPP outlines the analysis and data handling for all samples collected during RI activities. The QAPP is prepared to be consistent with the requirement of the U.S. EPA Contract Lab Program, and prepared in accordance with the EPA Requirements of QAPP.

In June 2007, RMT submitted a QAPP (Revision 0) to the U.S. EPA for review. Subsequent revisions and amendments were submitted as the scope of work changed as presented below:

- Revision 01- September 2007,
- Revision 02- February 2008,
- Revision 02, Addendum 2- September 2008, and
- Revision 02, Addendum 3- November 2008

In June 2009, CRA submitted Revision 3, Addendum 4 of the QAPP to include activities associated with the Phase II RI Work Plan, CRA project team, and updated laboratory

standards and operating procedures. The QAPP will be revised and resubmitted to U S EPA as needed to remain current throughout the completion of the RI/FS

3 2 3 QUALITY MANAGEMENT PROJECT PLAN

The QMP outlines the qualifications of the persons undertaking the work which will be completed on-Site. This includes all contractors, subcontractors, consultants and laboratories which will be used to carry out all work activities completed during the RI/FS investigations.

CRA submitted their QSM for Consulting Engineering and Design Services to the U S EPA in April 2009, which outlines CRA's ISO 9001 2008 Quality System Standards as CRA's QMP. Comments were received from U S EPA in April 2009. In June 2009, CRA submitted a letter to the U S EPA addressing these comments.

3 2 4 HEALTH AND SAFETY PLAN

The HASP outlines all measures that will occur on-Site to address and mitigate any potential health and safety concerns that may occur during Site activities including all activities related to the RI Work Plan. The program is in compliance with the Occupation Safety and Health Administration regulations and protocols as outlined in Title 29 of the Code of Federal Regulations, Part 1910.

CRA submitted to the U S EPA a HASP in March 2009.

3 2 5 SCHEDULE

In May 2009, CRA submitted a schedule for the completion of RI/ FS activities to the U S EPA which was further updated due to scope of work changes and review of the Phase II RI Work Plan. The project schedule is presented in Figure 3 1.

3 3 TASK 3- REMEDIAL INVESTIGATION

As discussed in Section 3 1, the RI portions of the Site investigations are to be completed in a phased approach. To date, Phase I has been completed. The Phase II RI Work Plan

was submitted to the U S EPA in May 2009, with field activities scheduled for completion in 2009 CRA will provide the U S EPA's Remedial Project Manager (RPM) an electronic copy of the analytical data associated with each sampling activity, including the location, medium and results

A notification of completion of field activities will be provided to the U S EPA and MDEQ within seven days of completion of field activities

3 4 TASK 4- REMEDIAL INVESTIGATION REPORT

The RI report outlines all activities and analytical data collected as part of the RI Work Plans The format of the report is to be consistent with the components as outlined in the SOW and the Consent Decree

Submittal of the RI report will occur as per the outlined schedule within the SOW

3 5 TASK 5- IDENTIFICATION OF REMEDIAL ACTION OBJECTIVES

A Remedial Action Objectives (RAOs) Technical Memorandum will be submitted to the U S EPA upon completion of the RI Investigation Report This report will outline site-specific remedial action objectives which are based on the human health and ecological risk assessments completed as part of the RI Report Furthermore, these objectives shall include any concern related to the media of interest, exposure pathways and receptors, and acceptable constituent level or range levels The memorandum will outline all objectives as determined by the SOW

Submittal of the RAOs Technical Memorandum will occur as per the schedule outlined within the SOW

3 6 TASK 6- DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES

An Alternatives Screening Technical Memorandum will be prepared and submitted to the U S EPA outlining the development and screening of remedial options to ensure the protection of human health and the environment while meeting the objectives of the RA

The memorandum will include the necessary information, as outlined in the SOW, for the remediation of the Site

Submittal of the RAOs Technical Memorandum will occur as per the schedule outlined in the SOW. The U.S. EPA's comments to the Alternatives Screening Technical Memorandum will be included as part of the FS Report.

3.7 TASK 7- FEASIBILITY STUDY REPORT

A FS Report will be submitted to the U.S. EPA to provide a detailed analysis of the list of remedial alternatives selected from the Site and a basis for conducting the RA. The FS will allow selection of an appropriate remediation option for the Site. The FS will include information necessary for the detailed analysis of alternatives as outlined in the Consent Decree and the SOW.

Submittal of the FS Report will occur as per the schedule outlined in the SOW.

3.8 TASK 8- PROGRESS REPORTS

Monthly progress reports will be submitted to the U.S. EPA outlining activities which were completed during the reporting period. These reports will include the following: significant developments, work performed, draft and/or validated data, problems encountered, developments anticipated for the next reporting period, schedule of work to be performed, anticipated problems, and plans to resolve past or anticipated problems.

Submittal of the progress reports will occur as per the SOW and the Consent Decree.

3.9 TASK 9- PROJECT MEETINGS

As outlined in the SOW, throughout the RI/FS process project meetings will take place. Additional meetings may be requested to ensure communication between all parties. All parties can request a meeting at any point above those required in the SOW.

Project Meetings will occur as outlined in the project schedule and the SOW.

3 10 TASK 10- COMMUNITY INVOLVEMENT AND SUPPORT

Community involvement as outlined in the SOW is the responsibility of the U S EPA
At this time, no community involvement has been requested with respect to RI/FS
activities. If required all community involvement will be planned and developed with
the U S EPA.

40 REFERENCES

BBL, 1996 Allied Paper, Inc /Portage Creek/Kalamazoo River Superfund Site Remedial Investigation/Feasibility Study, Technical Memorandum 15, Mill Investigation Blasland, Bouck & Lee, Inc , August 1996

ERM, 1997 Simpson Plainwell Paper Company Phase I Environmental Site Assessment and Phase II Investigation, Plainwell, Michigan Environmental Resources Management, June 1997

FTC&H, 2003 Phase I Environmental Site Assessment, Plainwell Paper Mill, Plainwell, Michigan May 2003

FTC&H, 2006 Phase II Environmental Site Assessment, Former Plainwell Paper Mill, Plainwell, Michigan October 2006

RMT Inc 2006 Draft Remedial Investigation/ Feasibility Study Work Plan, Plainwell Mill, Operable Unit No 6 of the Allied Paper Inc / Portage Creek/ Kalamazoo River Superfund Site Plainwell, Michigan September 2006

RMT Inc 2008 Addendum to Remedial Investigation/Feasibility Study Work Plan PCB Investigation Activities near Mill Building Banks, Former Plainwell Paper Mill Banks, Plainwell, Michigan March 2008

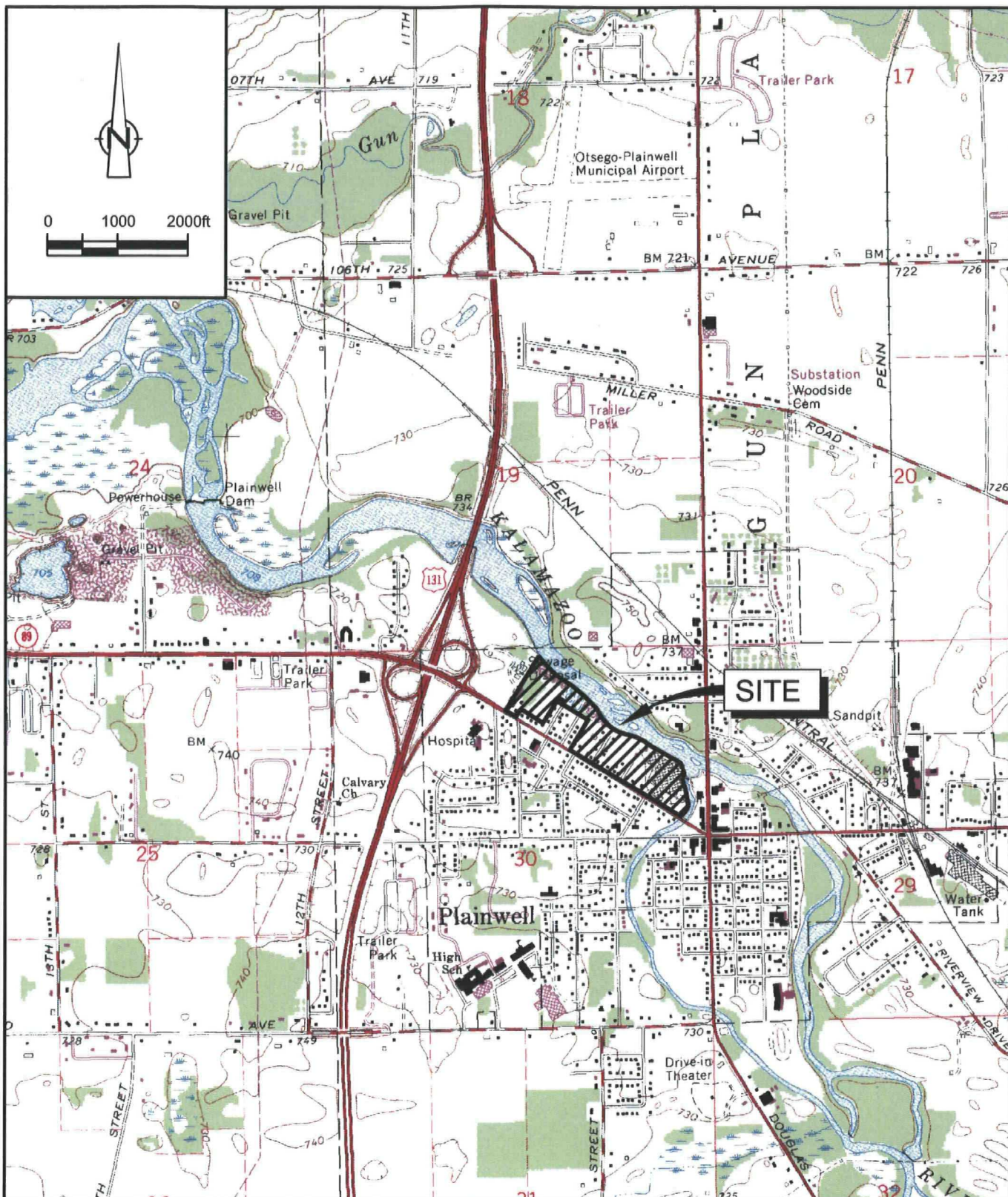
RMT Inc 2008 Addendum No 1 Remedial Investigation/Feasibility Study Work Plan, Former Plainwell Paper Mill Banks, Plainwell, Michigan September 2008

RMT Inc 2009 Technical Memorandum, Preliminary Summary of Test Pit Activities & Results for Plainwell Mill, Plainwell, Michigan January 2009

RMT Inc 2009 Emergency Response Plan Documentation Report, Former Plainwell Paper Mill Banks, Plainwell, Michigan February 2009

RMT Inc 2009 Technical Memorandum, Initial Groundwater & Coal Tunnel Assessment, Plainwell, Michigan February 2009

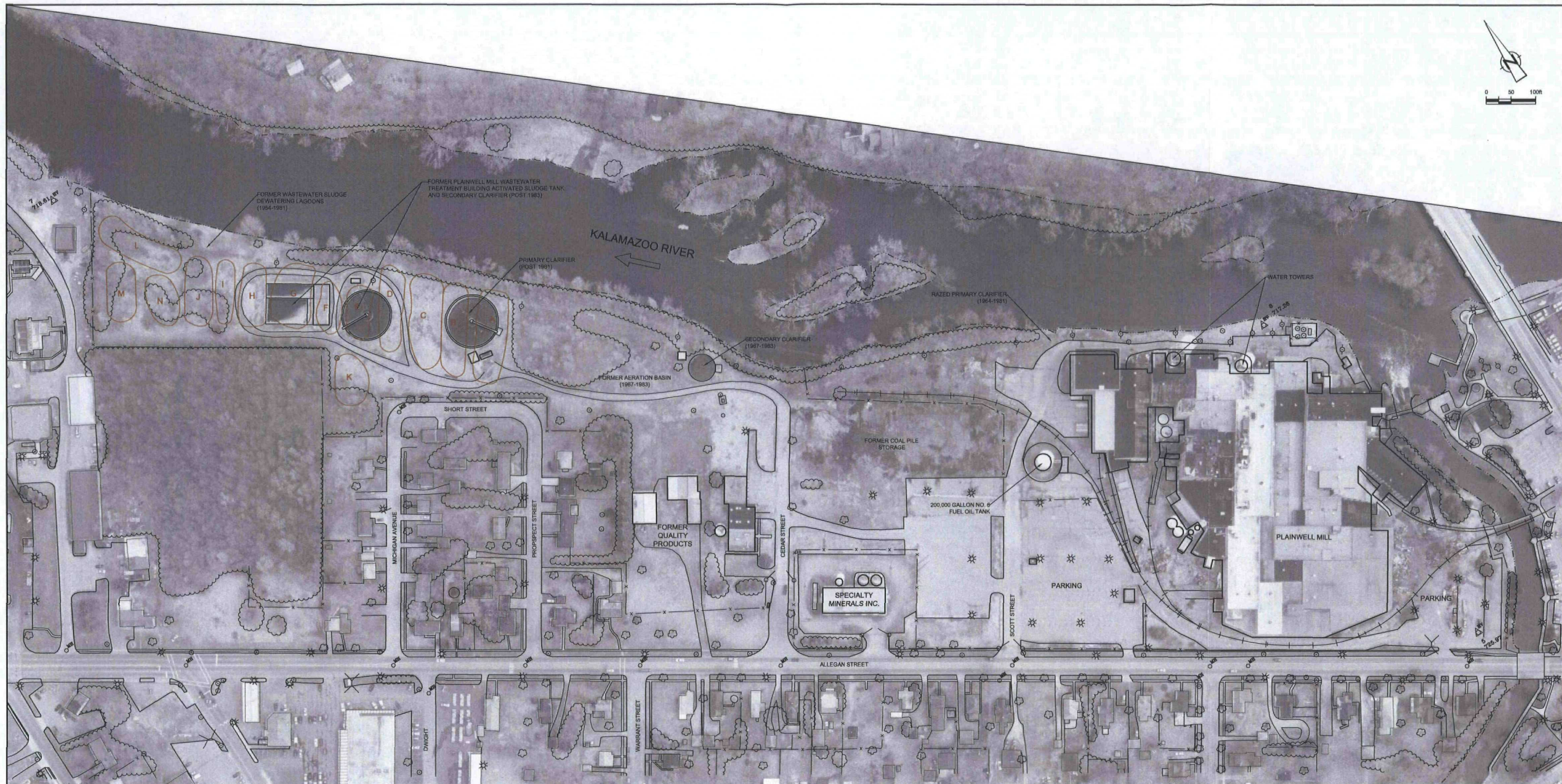
Wilkins & Wheaton 1980 Various Boring Logs from the Plainwell Mill Site



SOURCE: USGS QUADRANGLE MAP;
OTSEGO, MICHIGAN
1967, REVISED 1973



figure 1.1
SITE LOCATION MAP
RI/FS WORK PLAN
FORMER PLAINWELL, INC MILL PROPERTY
Plainwell, Michigan



LEGEND

	SHORELINE		UTILITY POLE
	FORMER WASTEWATER SLUDGE DEWATERING LAGOONS		LIGHT STANDARD
	FENCELINE		MANHOLE
	RAILWAY		SIGN
	VEGETATION		SURVEY BENCHMARK

SCALE VERIFICATION: THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

No	Revision	Date	Initial

Approved

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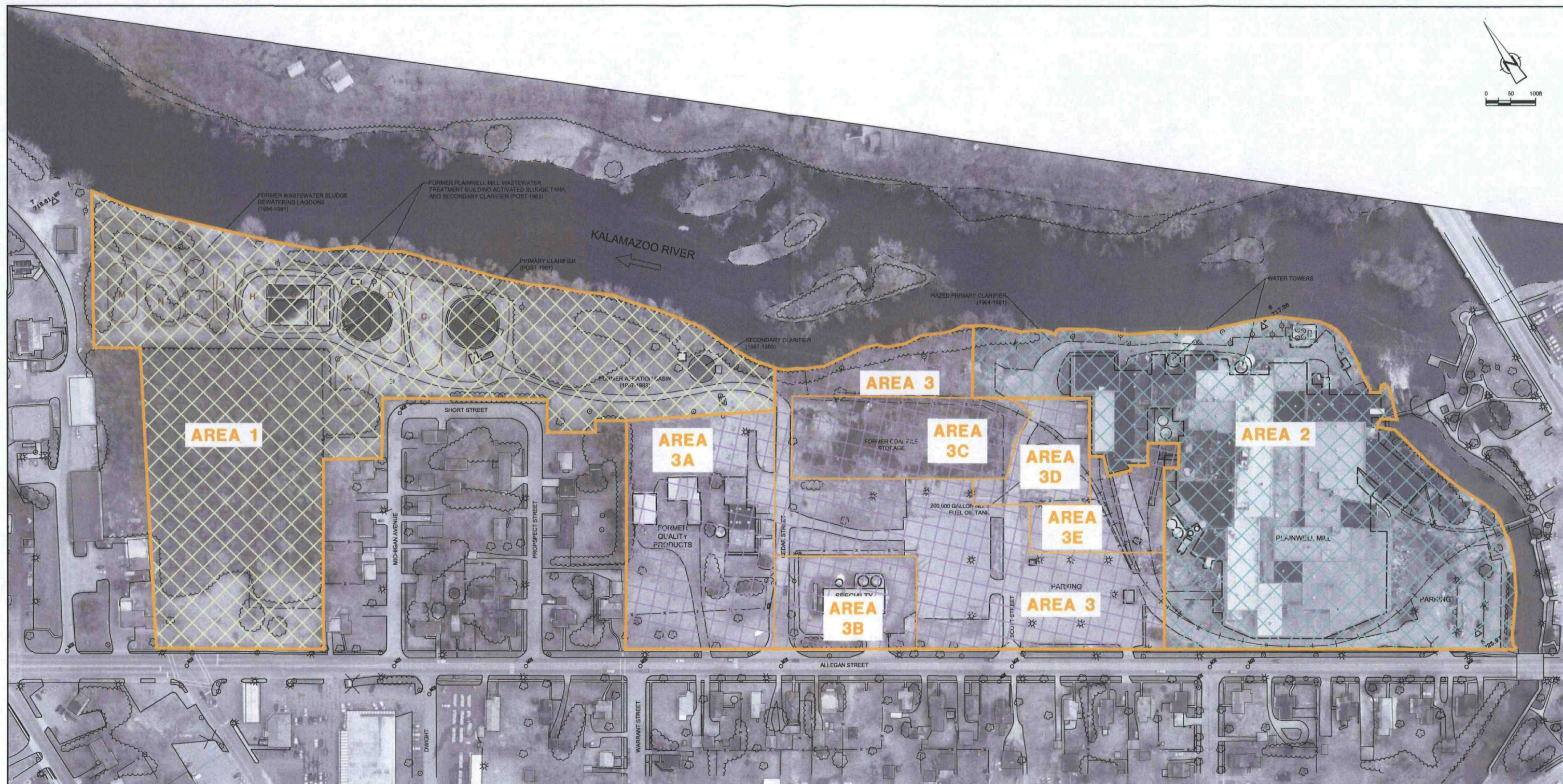
SITE PLAN

RI/FS WORK PLAN

**FORMER PLAINWELL, INC MILL PROPERTY
PLAINWELL, MICHIGAN**

CRA CONESTOGA-ROVERS & ASSOCIATES

Source Reference:		Date: JUNE 2009	
Project Manager: G. CARLI	Reviewed By: E. STAHL	Designed By: NA	Drawn By: C. JACOBI
Scale: 1:100	Project No: 056394-04	Report No: 004	Drawing No: FIGURE 1.2



LEGEND

	AREA BOUNDARY		UTILITY POLE
	SHORELINE		LIGHT STANDARD
	FORMER WASTEWATER SLUDGE DEWATERING LAGOONS		MANHOLE
	FENCELINE		SIGN
	RAILWAY		SURVEY BENCHMARK
	VEGETATION		

SCALE VERIFICATION: THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

No	Revision	Date	Initial

Approved _____

SITE INVESTIGATION AREA BOUNDARIES

R/FS WORK PLAN

FORMER PLAINWELL, INC MILL PROPERTY
PLAINWELL, MICHIGAN

CRA CONESTOGA-ROVERS & ASSOCIATES

Source Reference:		Date: JUNE 2009	
Project Manager: G. CARLI	Reviewed By: E. STAHL	Designed By: NA	Drawn By: C. JACOBI
Scale: 1:100	Project No: 056394-04	Report No: 004	Drawing No: FIGURE 1.3

056394-04(004)GN-SC004 JUL 13/2009

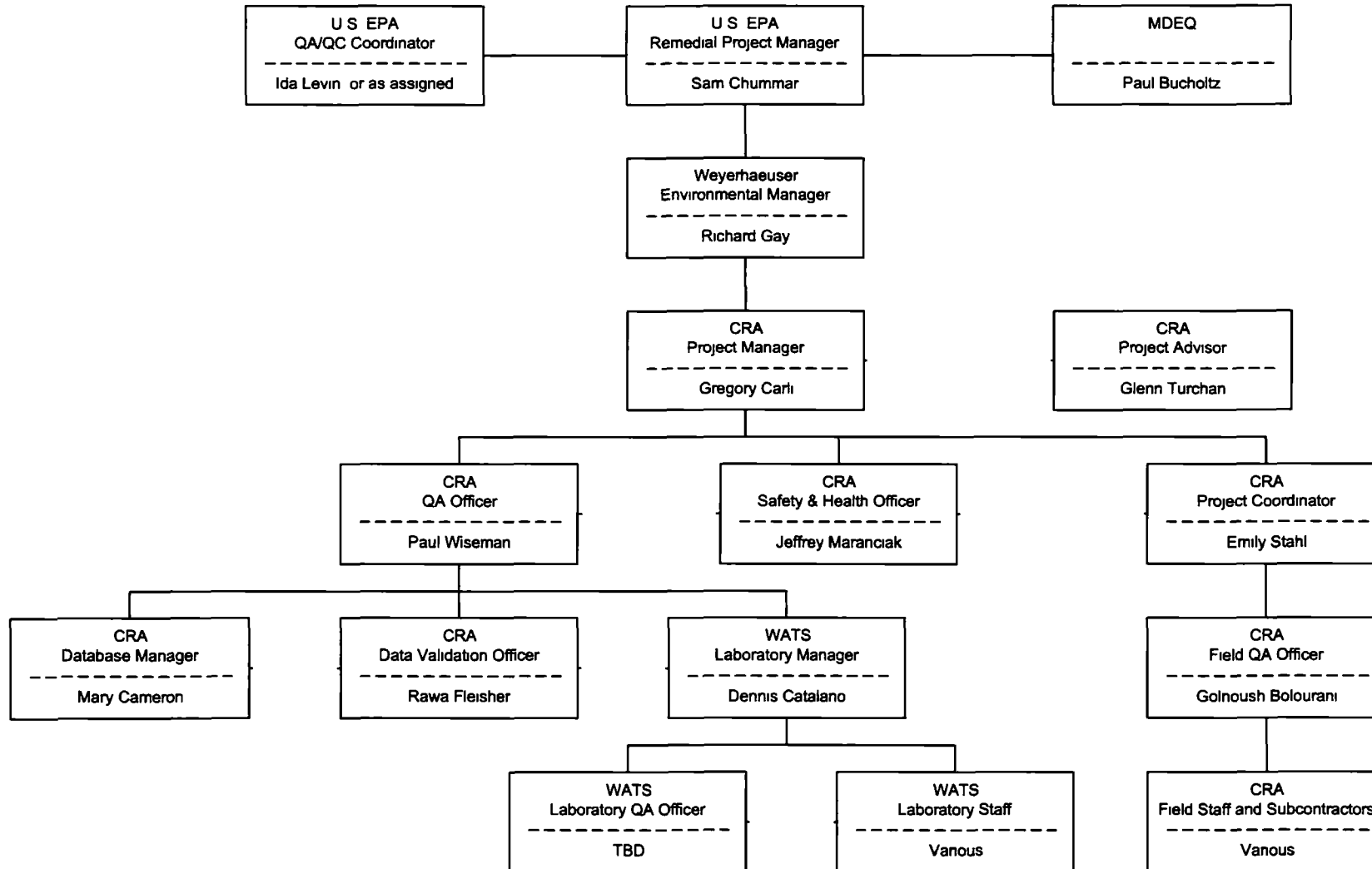


figure 1 4

PROJECT ORGANIZATIONAL CHART
RI/FS WORK PLAN
FORMER PLAINWELL, INC MILL PROPERTY
Plainwell, Michigan



56394-4-Figure 3.1 (Project Schedule)

APPENDIX A

STATEMENT OF WORK THE FOR REMEDIAL INVESTIGATION/ FEASIBILITY STUDY AT
THE PLAINWELL INC MILL PROPERTY CITY OF PLAINWELL MICHIGAN

**STATEMENT OF WORK FOR
THE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT
THE PLAINWELL INC MILL PROPERTY
CITY OF PLAINWELL, MICHIGAN**

PURPOSE

The purpose of this Statement of Work (SOW) is to set forth the requirements for conducting a Remedial Investigation and Feasibility Study (RI/FS) at the Plainwell Inc Mill Property, located in the City of Plainwell, Michigan (Mill) Weyerhaeuser Company (Weyerhaeuser) shall conduct the RI/FS pursuant to the terms of the Consent Decree for the Design and Implementation of Certain Response Actions at Operable Unit #4 and the Plainwell, Inc Mill Property of the Allied Paper, Inc /Portage Creek/Kalamazoo River Superfund Site (Consent Decree) The Consent Decree became effective on February 22, 2005 The Mill property to be addressed through this RI/FS is defined in the Consent Decree (see definitions of Mill or Mill Property, ' Mill Remedial Action and Appendix H)

The objectives of the RI/FS are

- (a) To determine the nature and extent of contamination at the Mill, consistent with the requirements of the National Oil and Hazardous Substance Pollution Contingency Plan (March 8, 1990) (NCP) and the Consent Decree
- (b) To assess any current and potential risks to human health or the environment caused by the release or threatened release of hazardous substances pollutants or contaminants (contaminants) at or from the Mill,
- (c) To collect data necessary to adequately characterize the nature and extent of contamination at the Mill for the purpose of developing and evaluating remedial alternatives, and
- (d) To develop and evaluate alternatives, consistent with reasonably anticipated future land use(s) at the Mill, for remedial action to prevent, mitigate, control or eliminate risks posed by any release or threatened release of contaminants at or from the Mill

The purpose of the RI is to obtain the data necessary to appropriately evaluate current and potential risks to human health and ecological receptors and to support development, evaluation and selection of appropriate response alternatives The RI involves Mill characterization, which includes (1) collecting and compiling both available and new data and information necessary to characterize the nature and extent of contamination at the Mill in support of remedial alternative development and evaluation, and (2) determining whether the contamination presents a significant risk to human health and the

environment. The RI may also involve treatability studies. The purpose of the FS is to develop and analyze remedial action alternatives to address identified risks. The RI/FS shall be conducted in accordance with the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA Office of Emergency and Remedial Response, October 1988) and other guidance U.S. EPA uses to conduct an RI/FS, as well as any additional requirements in the Consent Decree and/or the NCP.

In addition, the RI/FS activities will consider and take into account reasonably anticipated future land use options for the Mill in a manner consistent with Land Use in the CERCLA Remedy Selection Process, OSWER Dir. No. 9366.7-04, and EPA's Principles for Superfund Clean-up in the 21st Century (OSWER 9200.5-18). To assist in the determination of what are reasonably anticipated future land use options for the Mill, U.S. EPA funded an initial analysis of potential redevelopment options. U.S. EPA published the results of its analysis in a March 2005 report entitled, Planning for the Future: A Reuse Planning Report for the Plainwell Mill Property (2005 Reuse Planning Report). U.S. EPA understands that Weyerhaeuser is currently working with the City of Plainwell (the City), a professional urban planner, and other stakeholders to further identify and develop an array of reasonably anticipated future land use options for the Mill. Weyerhaeuser will use the information contained in the 2005 Reuse Planning Report and, to the extent available in a timely manner, the results of the land use planning efforts in scoping and conducting the RI/FS for the Mill.

All documents or deliverables required as part of this SOW shall be submitted to U.S. EPA, with a copy to the Michigan Department of Environmental Quality (MDEQ) for review and approval by U.S. EPA, in consultation with MDEQ. Weyerhaeuser shall submit 3 hard copies of each document or deliverable to both U.S. EPA and MDEQ. Electronic versions of each deliverable should also be submitted in addition to hard copies. Electronic versions should be compatible with MS Word. Weyerhaeuser shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS, except as otherwise specified herein.

Weyerhaeuser may propose, and U.S. EPA may consider and approve, the consolidation of deliverables required under this SOW to reduce review efforts and limit multiple revisions on related documents. Weyerhaeuser shall discuss with U.S. EPA its rationale for consolidating any deliverables approximately 45 days prior to the delivery date of the first scheduled deliverable that Weyerhaeuser seeks to consolidate with another document, and U.S. EPA will approve or disapprove such an approach approximately 30 days prior to the delivery date of the first scheduled deliverable that Weyerhaeuser seeks to consolidate with another document.

At the completion of the RI/FS, U.S. EPA, in consultation with MDEQ, will be responsible for the selection of a Mill remedy and will document this selection in a Record of Decision (ROD). The remedial action selected by U.S. EPA will meet the cleanup standards specified in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in

compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws will be cost-effective, will use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable and will address the statutory preference for treatment as a principal element. The final RI and FS Reports as approved by U S EPA will, with the administrative record, form the basis for the selection of the Mill's remedy and will provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, U S EPA will provide oversight of Weyerhaeuser's activities throughout the RI/FS, including all field sampling activities. Weyerhaeuser shall support U S EPA's oversight activities.

SCOPE

The tasks to be conducted during the RI/FS are as follows:

- Task 1 RI/FS Work Plan
- Task 2 RI/FS Sampling and Analysis Plan
- Task 3 Remedial Investigation
- Task 4 RI Report
- Task 5 Identification of Remedial Action Objectives
- Task 6 Development and Screening of Alternatives
- Task 7 Feasibility Study
- Task 8 Progress Reports
- Task 9 Project Meetings
- Task 10 Community Involvement Support

Task 1 RI/FS Work Plan

Within 45 calendar days of U S EPA's notification to Weyerhaeuser that this SOW has been approved in its final form, Weyerhaeuser shall submit a draft RI/FS Work Plan to U S EPA. The RI/FS Work Plan shall outline the approach to be used for conducting the RI/FS, and shall include a schedule stating when events will take place and when deliverables will be submitted. The objective of the RI/FS Work Plan is to identify those tasks that will be performed to meet the RI/FS objectives listed above.

The RI/FS Work Plan shall include the following information:

A Mill Background

Weyerhaeuser shall thoroughly compile and review all available data on the Mill. A summary of the following information shall be included in this section: presently available data relating to the location, types and quantities of hazardous substances associated with the Mill operations, past waste disposal practices, and the results of previous sampling and/or removal activities, including any available analytical data packages from sampling conducted by Plainwell Inc., the Kalamazoo River Study Group, the City of Plainwell, MDEQ, U S EPA, and/or others. Examples of existing

information about the Mill may include Mill Investigation Reports, Preliminary Assessment Reports, Phase I and/or Phase II environmental reports, historical aerial photography or reports prepared by others

B Preliminary Conceptual Site Model (s)

To the extent that the land use planning process can be completed in a timely manner, Weyerhaeuser may integrate the outcomes of the planning process into the Work Plan scoping activities or use in subsequent data evaluation and interpretation. Tasks may include a validation of the redevelopment objectives and conclusions presented in the 2005 Reuse Planning Report, a review of the condition of Mill buildings, an assessment of potential economic benefits of various redevelopment options and a preliminary identification of the potential areas of environmental concern. As noted above, City stakeholders are involved in establishing options for future use that will also form part of the basis for the preliminary conceptual site model(s).

The available information shall be used to develop one or, if Weyerhaeuser requests and EPA agrees, two preliminary conceptual site models. The first model will describe current conditions and historic land use. This site conceptual model will describe the following aspects of the Mill: condition, location and character of potential sources, description of the use/deposition of hazardous substances associated with past Mill operations, description of the geologic and hydrologic systems, groundwater-surface water interactions, identification of contaminants of concern, distribution of hazardous constituents in soil, groundwater, and other media, if known, fate and transport of hazardous constituents in all media, potential receptors, and potential exposure pathways. If U.S. EPA agrees after a request by Weyerhaeuser, a second model will also be developed that will consider the implications of reasonably anticipated future land use on exposure and contaminant transport. The preliminary conceptual site model, along with any future land use model, if available, shall serve as the basis for evaluating data gaps and scoping the RI/FS activities.

C Data Gap Description and Evaluation

Weyerhaeuser shall evaluate and describe what data will be necessary to fully evaluate remedial alternatives to be developed in the FS. Based on the preliminary conceptual model(s) of the Mill, data gaps shall be identified, which shall indicate what additional information is needed to meet the RI/FS objectives listed above. The data gap description shall be used to determine the data that is to be obtained during the RI/FS.

D Site Management Strategy

Within 21 calendar days of EPA's receipt of the draft RI/FS Work Plan and related RI/FS Field Sampling Plan, Weyerhaeuser shall update U.S. EPA regarding the progress of on-going integrated remediation/redevelopment activities. If needed

Weyerhaeuser shall invite the City of Plainwell to a site management strategy meeting to discuss the potential integration of RI/FS investigation activities to the extent practicable, with the City's redevelopment plans for the Mill. Any changes to the long term site management strategy will be presented in any subsequent draft, and the final, RI/FS Work Plan.

Weyerhaeuser shall submit draft and final versions of the RI/FS Work Plan according to the schedule attached to this SOW.

Task 2 Sampling and Analysis Plan

Concurrently with submittal of the RI/FS Work Plan, Weyerhaeuser shall submit a draft Sampling and Analysis Plan (SAP), as described in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, October, 1988. The SAP shall contain the Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), Health and Safety Plan (HSP), Quality Management Project Plan (QMPP), and Schedule, as described below. The QAPP will be discussed with U.S. EPA in a pre-QAPP meeting and then, if possible, submitted to the U.S. EPA quality assurance team for review on an expedited schedule.

The following plans and activities shall be included within the SAP:

A. Field Sampling Plan

The FSP shall identify all sampling objectives, equipment and decontamination procedures, and sample handling and analysis protocols. The FSP shall also specify the locations, numbers, and types of samples that will be collected during the RI to satisfy the identified data gaps and cover all sample collection activities. Sampling data shall be sufficient to support the evaluation of potential human health and ecological risks, and to support the selection of an appropriate remedy, if necessary. As needed to fill data gaps identified in the RI/FS Work Plan, descriptions of the following activities shall be included in the FSP:

- 1) Characterization of waste materials. The FSP shall include a program to characterize the nature and extent of the waste materials at the Mill. The characterization shall include an evaluation of the different types of materials, the location, thickness, and approximate age of the waste materials, the potential for releases from the waste materials through soil and dust, and risks related to exposure to the materials. A detailed evaluation of the distribution of waste materials at and from the Mill shall be conducted, based on a review of historical air photos, mapping, and/or sampling.
- 11) Hydrogeologic Investigation. The FSP shall include a detailed hydrogeologic investigation to determine the presence and potential extent of hazardous substances in groundwater, and their fate and transport in the groundwater system. The characterization may include, but not limited to, installation of wells, water

level measurements, groundwater sampling, hydrogeologic testing and evaluation of groundwater surface water interactions. A numerical groundwater model may be used to aid in guiding investigation activities and interpreting results. If needed, the model shall be identified in the RI/FS Work Plan or a subsequent technical memorandum submitted to the U.S. EPA for approval prior to use.

- iii) Soil Investigation The FSP shall include a detailed characterization to evaluate the nature and extent of contamination in surface and subsurface soils. Sampling shall be sufficient in location, type, and number of samples to provide a statistically defensible value for background concentration of the contaminants of concern (COCs) in the area soils.
- iv) Air Investigation Weyerhaeuser will discuss with U.S. EPA the framework and rationale any air investigation, if needed, based upon historic data and operations as summarized in the RI Work Plan. If U.S. EPA determines after consultation with Weyerhaeuser, that an air investigation is needed, the FSP will include a characterization to evaluate the nature and extent of atmospheric contamination from the previous source areas at the Mill. The characterization may include, but need not be limited to, the collection of wind flow and direction and sampling of atmospheric particles for COCs. Sampling shall be sufficient in location, type, and number to provide a defensible value for background concentrations of COCs in the area air.
- vv) Treatability Studies If Weyerhaeuser or U.S. EPA identifies potential remedial actions that involve treatment, Weyerhaeuser shall perform treatability studies unless Weyerhaeuser satisfactorily demonstrates to U.S. EPA that such studies are not needed. When treatability studies are needed, Weyerhaeuser shall plan initial treatability testing activities (such as research and study design) to occur concurrently with Mill characterization activities. The results of the treatability testing will be documented in a Technical Memorandum.

B Quality Assurance Project Plan

Weyerhaeuser shall prepare a Mill specific QAPP covering sample analysis and data handling for samples collected during the RI, based on the Consent Decree and guidance provided by U.S. EPA. The QAPP shall be consistent with the requirements of the U.S. EPA Contract Lab Program (CLP) for laboratories proposed outside the CLP. Weyerhaeuser shall follow the U.S. EPA Region 5 Superfund Division Model QAPP guidance to prepare the QAPP. The QAPP will be prepared in accordance with 'EPA Requirements of Quality Assurance Project Plans (QA/R-5) (EPA/240/B-01/003, March 2001) and EPA Guidance for Quality Assurance Project Plans (QA/G-5) (EPA/600/R-98/018, February 1998).

Weyerhaeuser will demonstrate, in advance to U.S. EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media sampled.

within detection and quantification limits consistent with both QA/QC procedures and Data Quality Objectives (DQOs) approved in the QAPP for the Mill by U S EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the CLP is selected, methods consistent with CLP methods that would be used at this Mill for the purposes proposed and QA/QC procedures approved by U S EPA will be used. Weyerhaeuser shall only use laboratories which have a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, (American National Standard, January 5, 1995) and EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B 01-002 March 2001) or equivalent documentation as determined by U S EPA.

Upon request by U S EPA, Weyerhaeuser shall allow U S EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by the Weyerhaeuser or their contractors or agents. Weyerhaeuser shall notify U S EPA not less than 15 business days in advance of any sample collection activity. U S EPA shall have the right to take any additional samples that it deems necessary. U S EPA shall allow Weyerhaeuser or its authorized representatives to take split and/or duplicate samples of any samples collected by the U S EPA or its contractors or agents. Upon request by U S EPA, Weyerhaeuser shall have such laboratory analyze samples submitted by U S EPA for quality assurance monitoring. Weyerhaeuser shall provide U S EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Weyerhaeuser shall also ensure the provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, Extending the Tracking of Analytical Services to PRP Lead Superfund Sites.

C Quality Management Plan

All work performed under this SOW shall be under the direction and supervision of qualified personnel. Weyerhaeuser shall notify U S EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such work. With respect to any proposed contractor, Weyerhaeuser shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4 1994, 'Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, (American National Standard, January 5, 1995), by submitting a copy of its contractor's Quality Management Plan (QMP) which was recently accepted by U S EPA in connection with the 12th Street Landfill. The QMP should be prepared in accordance with EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B 01/002, March 2001) or equivalent documentation as determined by U S EPA. The qualifications of the persons undertaking the work for Weyerhaeuser shall be subject to U S EPA's review, for verification that such persons meet minimum technical background and experience requirements.

D Health and Safety Plan

Weyerhaeuser shall prepare a Health and Safety Plan that describes the measures that will be taken to protect on site personnel, area residents, and nearby workers from physical chemical, and all other hazards posed by sampling events described in this SOW. The health and safety program shall comply with the Occupational Safety and Health Administration (OSHA) regulations and protocols outlined in Title 29 of the Code of Federal Regulations (CFR), Part 1910. The Health and Safety Plan shall develop the performance levels and criteria necessary to address the following areas:

- General requirements including site access and security coordinated with the City of Plainwell and, if necessary, Plainwell Inc
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination – personal and equipment
- Work zones
- Contaminant control
- Contingency and emergency planning (including response to fires/explosions)
- Logs, reports, and record keeping

U S EPA does not "approve" Weyerhaeuser's Health and Safety Plan, but rather U S EPA reviews it to ensure that all the necessary elements are included, and that the plan provides for the protection of human health and the environment, and after that review provides comments as may be necessary and appropriate. The safety plan must, at a minimum, follow the U S EPA's guidance document Standard Operating Safety Guides (Publication 9285 1-03, PB92 963414, June 1992).

E Schedule

Weyerhaeuser shall include a schedule which identifies timing for initiation and completion of the RI/FS tasks identified in the Work Plan. This schedule should be consistent with the schedules in the Consent Decree and this SOW. The timing of any deliverables shall also be specified.

Task 3 Remedial Investigation

Within 14 days of U S EPA's approval of the Final SAP, Weyerhaeuser shall commence the Remedial Investigation (RI). Weyerhaeuser shall conduct the RI according to the U S EPA approved RI/FS Work Plan and SAP. Weyerhaeuser shall coordinate activities with U S EPA's Remedial Project Manager (RPM). Weyerhaeuser shall provide the RPM with analytical data within 45 days of receipt of validated analytical data associated

with each sampling activity, in electronic format showing the location, medium, and results. Within seven days of completion of field activities, Weyerhaeuser shall notify U.S. EPA and MDEQ in writing.

Task 4 RI Report

Within 90 calendar days of the receipt of validated data, Weyerhaeuser shall submit a draft RI Report. Weyerhaeuser shall refer to Section 3 (especially Table 3-13) of the RI/FS Guidance for an outline of suggested RI Report format and the RI Report contents.

The RI report shall provide the information needed to assess Mill conditions and evaluate alternatives to the extent necessary to select a remedy. 40 C.F.R. Section 300.430(a)(2). This information will also be used to update the initial site conceptual model(s) and serve as the basis for the human health and ecological risk assessments. The scope and timing of the following RI/FS activities shall be tailored to the nature and complexity of the site conditions (40 CFR § 300.430(a)(2)). The components to be included in the RI report are described below. These components may be consolidated at Weyerhaeuser's request and with U.S. EPA's agreement to streamline the RI report.

1. **Executive Summary** The Executive Summary shall provide a general overview of the contents of the RI Report. It shall contain a brief discussion of the Mill and the current and/or potential threats posed by conditions at the Mill.
2. **Mill Characterization** The RI report shall summarize all available data on the physical, demographic, and other characteristics of the Mill. Specific topics which shall be addressed in the site characterization are detailed below. The site characterization shall concentrate on those characteristics necessary to evaluate and select an appropriate remedy.

2.1 Mill Description and Background

The Mill description includes current and historical information. The following types of information shall be included, where available and as appropriate:

- 2.1.1 Mill Location and Physical Setting
- 2.1.2 Present and Past Facility Operations and Disposal Practices
- 2.1.3 Summary of Previous Investigations and/or Removal Actions
- 2.1.4 Geology/Hydrology/Hydrogeology
- 2.1.5 Current and Past Groundwater Use in the Mill Area
- 2.1.6 Surrounding Land Use and Populations
- 2.1.7 Sensitive Ecosystems
- 2.1.8 Meteorology/Climatology

2.2 Groundwater Fate and Transport

- 2.2.1 Contaminant Characteristics
- 2.2.2 Groundwater Fate and Transport Processes
- 2.2.3 Groundwater Contaminant Migration Trends
- 2.2.4 Groundwater Modeling

2.3 Previous Response Actions at the Mill and Effect on Future Response Actions at Other OUs

The site characterization section shall describe any previous removal and remedial actions at the Mill. The Mill characterization shall also describe and evaluate how response action at the Mill will affect or be affected by future response actions at other operable units of the Allied Paper/Portage Creek/Kalamazoo River Site, including Operable Unit #4 (12th St Landfill) and Operable Unit #5 (Kalamazoo River). Previous information, if relevant, shall be organized as follows:

- The scope and objectives of the previous removal action(s),
- The amount of time spent on the previous removal action(s),
- The nature and extent of hazardous substances, pollutants or contaminants treated or controlled during the previous removal action(s) (including all monitoring conducted),
- The technologies used and/or treatment levels used for the previous removal action(s)

2.4 Source, Nature and Extent of Contamination

This section shall summarize the available Mill characterization data, including the locations of the hazardous substances, pollutants, or contaminants in soil, groundwater and as applicable, air, the quantity, volume, size or magnitude of the contamination, and the physical and chemical attributes of the hazardous pollutants or contaminants.

2.5 Analytical Data

This section shall present the available data, including but not limited to, soil, groundwater and, as applicable, air. This section should discuss any historical data gaps that were identified, and the measures taken to develop all necessary, additional data.

2.6 Results of Pilot Tests

This section shall document the results of pilot tests, as appropriate, including treatability studies, as referenced in the RI/FS Sampling Plan.

2.7 Human Health Risk Assessment

The human health risk assessment shall focus on actual and potential risks to persons coming into contact with on-site contaminants as well as risks to the nearby residential, recreational and industrial worker populations from exposure to any contaminated soils and air. Central tendency and reasonable maximum estimates of exposure shall be defined for current land use conditions and reasonably anticipated future land uses. The risk assessment shall use data from the Mill and nearby areas to identify any contaminants of concern (COC), provide an estimate of how and to what extent human receptors might be exposed to these contaminants and provide an assessment of potential risk associated with these contaminants. The evaluation shall project the potential risk of health problems occurring if no cleanup action is taken at the Mill and establish target action levels for COCs (carcinogenic and non-carcinogenic).

In order to streamline the assessment of potential risks associated with environmental contamination caused by historical site activities as an initial step in assessing potential risks, Weyerhaeuser may compare concentrations of site related constituents with relevant and appropriate clean up criteria developed by the State of Michigan under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act (NREPA), 1994 Act 451, as amended.

The risk assessment shall be conducted in accordance with U.S. EPA guidance including, at a minimum, Risk Assessment Guidance for Superfund (RAGS), Volume I Human Health Evaluation Manual (Part A), Interim Final (EPA-540-1-89-002), OSWER Directive 9285.7-01A, December 1, 1989, and Risk Assessment Guidance for Superfund (RAGS), Volume I Human Health Evaluation Manual (Part D Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Interim, (EPA 540-R-97-033), OSWER 9285.7-01D, January, 1998. Additional guidance on performing the human health risk assessment is found in the following U.S. EPA OSWER directives:

- 1) Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, OSWER Directive 9200.4-27, August, 1998,
- 2) Soil Screening Guidance Technical Background Document, OSWER Directive 9355.4-17A, May 1, 1996 and Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER Directive 9355.4-24, March 2001,
- 3) Soil Screening Guidance User's Guide, Publication 9355.4-23, April 1996,

- 4) Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, OSWER Directive 9355 4-12, July 14, 1994,
- 5) Guidance Manual for the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children, Publication 9285 7-15 1, February, 1994, and associated, clarifying Short Sheets on IEUBK Model inputs, including but not limited to OSWER 9285 7 32 through 34, as listed on the OSWER lead internet site at www.epa.gov/superfund/programs/lead/prods.htm,
- 6) Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children,' Version 0 99D, NTIS PB94 501517, 1994 or 'Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children,' Windows© version, 2001
- 7) Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual (Part B, Development of Risk based Preliminary Remediation Goals), ' Interim OSWER Directive 9285 7-01B, December, 1991,
- 8) Human Health Evaluation Manual Supplemental Guidance Standard Default Exposure Factors, OSWER Directive 9285 6-03, March 25, 1991,
- 9) ' Exposure Factors Handbook," Volumes I, II, and III, August 1997 (EPA/600/P-95/002Fa,b,c),
- 10) "Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions", OSWER 9355 0-30, April 1991, and
- 11) "Land Use in CERCLA Remedy Selection Process", OSWER 9355 7-04, 1995

Guidance on assessing human health risk associated with adult exposures to lead in soil is found in the following document Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil, December, 1996 This document may be downloaded from the Internet at the following address [ww.epa.gov/superfund/programs/lead/prods.htm](http://www.epa.gov/superfund/programs/lead/prods.htm)

The human health risk assessment shall include the following elements

- Hazard Identification (sources) Weyerhaeuser shall review available information on the hazardous substances present at the

Mill, and identify the major COCs COCs should be selected based on their detected concentrations and intrinsic toxicological properties,

- Conceptual Site Model and Exposure/Pathway Analysis,
- Characterization of Mill and Potential Receptors,
- Exposure Assessment Weyerhaeuser shall develop central tendency and reasonable maximum estimates of exposure for current and potential land use conditions at and near the Mill,
- Toxicity Assessment,
- Risk Characterization, and
- Identification of Limitations/Uncertainties

2.8 Ecological Risk Assessment

The ecological risk assessment shall supplement the approved Final (Revised) Baseline Ecological Risk Assessment Allied Paper, Inc/Portage Creek/Kalamazoo River Superfund Site (MDEQ 2003) This supplement will be prepared in general accordance with U S EPA guidance including, at a minimum Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments (EPA-540-R 97 006, June 1997) OSWER Directive 9285 7 25

The supplemental on-site assessment shall cover the impact if any to terrestrial ecosystems within and adjacent to the Mill The supplemental on-site ecological risk assessment may be initiated with a scoping checklist (USEPA 1997) reflecting considerations of the reasonably anticipated future land uses This scoping will refine the additional ecological evaluation steps The supplemental ecological evaluation will progress through the outlined steps as part of the RI

- **Screening-Level Supplemental Problem Formulation and Ecological Effects Evaluation** Existing and RI information will be reviewed in the context of current and reasonably anticipated future environmental settings, contaminant fate and transport mechanisms present at the Site, mechanisms of ecotoxicity associated with contaminants and likely categories of receptors that could be affected
- **Screening-Level Supplemental Exposure Estimate and Risk Calculation** Exposure estimates will be developed based on appropriate and reasonable exposure assumptions and concentrations

present Hazard quotients (or hazard indices if appropriate) will be estimated indicating which, if any, contaminants and exposure pathways might pose ecological threats

Results of these first supplemental ecological evaluation steps will be submitted for review and approval. If the screening supplemental assessment demonstrates the potential for excess risks to ecological receptors, then the supplemental evaluation process will continue, following U.S. EPA consultation with Weyerhaeuser, in general accordance with the following steps:

- **Supplemental Risk Assessment Problem Formulation**
- **Study Design and Data Quality Objective Process with Field Verification of Sampling Design, if needed**
- **Site Investigation and Analysis Phase, if needed**
- **Supplemental Risk Characterization - integrating the results of the exposure profile and exposure-response analyses and including a discussion of critical assumptions and uncertainties**

If applicable as a result of the disposal, release and migration of contaminants in groundwater at or from the Mill, unless U.S. EPA agrees otherwise after consultation with Weyerhaeuser, the assessment shall also cover aquatic ecosystems.

The supplemental aquatic ecological risk assessment may consist of a scoping checklist (USEPA 1997) based upon consideration of the likely future land use. This scoping may support the need for additional ecological evaluation steps unless U.S. EPA agrees otherwise after consultation with Weyerhaeuser. If needed, the supplemental aquatic ecological evaluation will progress through the steps outlined above as part of the RI.

2.9 Summary and Conclusions

2.9.1 Summary

- 2.9.1.1 Nature and Extent of Contamination
- 2.9.1.2 Fate and Transport
- 2.9.1.3 Human Health and Ecological Risk Assessment

2.9.2 Conclusions

- 2.9.2.1 Data Limitations and Recommendations for Future Work

Task 5 Identification of Remedial Action Objectives

Immediately after approval of the Final RI Report, Weyerhaeuser shall begin preparation of components of the draft Feasibility Study report. As indicated above, Weyerhaeuser may propose, and U S EPA may approve, the consolidation of deliverables required under this SOW.

Within 45 calendar days of U S EPA approval of the Final RI Report, Weyerhaeuser shall develop Mill specific remedial action objectives (RAOs) for review. Weyerhaeuser shall submit these RAOs in a draft Remedial Action Objectives Technical Memorandum unless Weyerhaeuser requests and U S EPA agrees that the RAOs can be incorporated into the draft Feasibility Study report, for U S EPA review and approval. The RAOs shall be based on the findings of the human health and ecological risk assessments, considering the following:

- Prevention or abatement of actual or potential exposure to nearby human populations (including workers), animals, or the food chain from hazardous substances, pollutants, or contaminants,
- Prevention or abatement of actual or potential contamination of drinking water supplies,
- Acceptable chemical specific constituent levels, or range of levels, for appropriate site specific exposure routes,
- Mitigation or abatement of other situations or factors that may pose threats to public health, welfare, or the environment, and
- A preliminary evaluation of applicable or relevant and appropriate requirements (ARARs).

The RAO Technical Memorandum shall specify the constituents of concern and the media of interest, exposure pathways and receptors, and an acceptable constituent level or range of levels (at particular locations for each exposure route). Weyerhaeuser shall address and incorporate U S EPA's comments on the RAO Technical Memorandum in the Alternatives Screening Technical Memorandum (see below) or, if EPA agrees after consultation with Weyerhaeuser, within the draft Feasibility Study report.

Task 6 Development and Screening of Remedial Alternatives

Within 60 calendar days of U S EPA approval of the RAO Technical Memorandum, Weyerhaeuser shall develop and evaluate a range of appropriate remedial options that, at a minimum, ensure protection of human health and the environment and meet the remedial action objectives. Consistent with the conclusions of the risk assessments and, to the extent available, the City's land use planning efforts described above, Weyerhaeuser shall present and summarize the development and screening of these

remedial alternatives in either an Alternatives Screening Technical Memorandum or, if the U S EPA agrees in the draft Feasibility Study report, after consultation with Weyerhaeuser The Alternatives Screening Technical Memorandum or draft FS shall include descriptions of technologies that were eliminated from consideration and will provide the basis for their elimination Preliminary screening will be guided, as appropriate and to the extent sufficient information is available, by the short- and long term aspects of effectiveness, implementability, and cost (40 C F R § 300.430(e)(7)) The outcome of the alternatives screening will be a short list of alternatives which will undergo detailed analysis in the Feasibility Study

The range of alternatives to be screened shall include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but which vary in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed, options involving containment with little or no treatment, options involving both treatment and containment, and a no action alternative Weyerhaeuser shall perform the following activities as a function of the development and screening of remedial alternatives Potential Remedial Alternatives will be screened and developed in accordance with Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA/540/G-89/004, October 1988) Implementing Presumptive Remedies (EPA 540-R-97-029, October 1997) will also be considered Presumptive remedies involve using remedial technologies that have been consistently selected at similar sites or for similar types of contamination Using the presumptive remedy guidance provides an immediate focus to the identification and analysis of remedial alternatives

The draft Feasibility Study or a separate Alternatives Screening Technical Memorandum will include the following

A Development of General Response Actions

After U S EPA approves the RAOs (Task 5) Weyerhaeuser shall develop general response actions for each medium of interest including containment treatment excavation, pumping, or other actions, singly or in combination, to satisfy the U S EPA approved RAOs

B Identification of Areas or Volumes of Media

Weyerhaeuser shall identify areas or volumes of media to which the general response actions may apply, taking into account requirements for protectiveness as identified in the RAOs Weyerhaeuser shall also take into account the chemical and physical characterization of the Mill

C Identification, Screening, and Documentation of Remedial Technologies

Weyerhaeuser shall identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Mill Weyerhaeuser shall refine applicable general response actions to specify remedial

technology types Weyerhaeuser shall identify technology process options for each of the technology types concurrently with the identification of such technology types or following the screening of considered technology types Weyerhaeuser shall evaluate process options on the basis of effectiveness, implementability, and costs to select and retain one or, if necessary, more representative processes for each technology type Weyerhaeuser shall summarize and include the technology types and process options in the Alternatives Screening Technical Memorandum Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches

D Assembling and Documentation of Alternatives

Weyerhaeuser shall assemble the selected representative technologies into alternatives for each affected medium Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address the Mill as a whole Weyerhaeuser shall prepare a summary of the assembled alternatives and their related action and chemical-specific ARARs for the draft Feasibility Study report or, the Alternatives Screening Technical Memorandum Weyerhaeuser shall specify the reasons for eliminating alternatives during the preliminary screening process

E Screening and Documentation of Each Alternative

Unless EPA agrees otherwise Weyerhaeuser shall perform a final screening process based on short and long term aspects of effectiveness, implementability and relative cost Generally, this screening process is only necessary when there are many feasible alternatives available for a detailed analysis If necessary, Weyerhaeuser shall conduct the screening of alternatives to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis The range of alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable

F Summary and Preparation of Alternatives Array

Weyerhaeuser shall summarize the work performed during and the results of each of the above tasks, and shall include an alternatives array summary If required by U S EPA, Weyerhaeuser shall modify the alternatives array to assure that the array identifies a complete and appropriate range of viable alternatives to be considered in the detailed analysis

The Alternatives Screening Technical Memorandum (or draft FS report) shall document the methods, the rationale and the results of the alternatives screening process Weyerhaeuser shall incorporate any U S EPA comments on the Alternatives Screening Technical Memorandum in the Feasibility Study Report

Task 7 Feasibility Study

Based on the outcome of the remedial alternatives screening process, a Feasibility Study shall be performed to provide a detailed evaluation of the list of alternatives as approved by U S EPA. The FS will provide U S EPA with the information needed to select an appropriate remedy for the Mill. The FS shall include the following activities:

A Detailed Analysis of Alternatives

Weyerhaeuser shall conduct a detailed analysis of the remedial alternatives for the Mill. The detailed analysis shall include an analysis of each remedial option against a set of nine evaluation criteria, as provided in the NCP, and a comparative analysis of all options using the same nine criteria as a basis for comparison.

- i) **Apply Nine Criteria and Document Analysis.** Weyerhaeuser shall apply the nine evaluation criteria to the assembled remedial alternatives. The nine evaluation criteria consist of: (1) overall protection of human health and the environment,, (2) compliance with ARARs, (3) long-term effectiveness and permanence, (4) reduction of toxicity, mobility, or volume, (5) short term effectiveness, (6) implementability, (7) cost, and to the extent feasible, (8) state (or support agency) acceptance, and (9) community acceptance. Criteria 8 and 9 will be considered by U S EPA before a final remedial action is decided. For each alternative, Weyerhaeuser shall provide: (1) a description of the alternative that outlines the remediation strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment.
- ii) **Comparative Analysis of Remedial Action Alternatives.** Weyerhaeuser shall then perform a comparative analysis between the remedial alternatives. That is, Weyerhaeuser shall compare each alternative against the other alternatives using the nine evaluation criteria as a basis of comparison. Based on these evaluations, U S EPA will identify and select the preferred alternative.

B Feasibility Study Report

Weyerhaeuser shall submit the draft FS report within 90 calendar days of U S EPA approval of the Alternatives Screening Technical Memorandum, if required by U S EPA, or within 90 calendar days of U S EPA's approval of the Remedial Action Objectives Technical Memorandum. The FS report shall present the detailed analysis of remedial alternatives. If Weyerhaeuser has prepared an Alternatives Screening Technical Memorandum, that document will be included as an attachment to the FS Report for reference. The FS Report shall also include the information U S EPA will need to prepare relevant sections of the ROD for the Mill [see Chapters 6 and 9 of U S EPA's A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (EPA 540-R-98-031, July 1999) for the information that is needed].

The FS Report, as ultimately approved or amended by U S EPA, provides the basis for conducting a remedial action at the Mill and documents the development and analysis of remedial alternatives. Weyerhaeuser shall refer to Section 6 of the RI/FS Guidance for an outline of the FS Report format and the required FS Report contents.

Task 8 Progress Reports

Within 30 calendar days after U S EPA's notification to Weyerhaeuser that the SOW has been approved in its final form, unless otherwise directed in writing by the RPM, Weyerhaeuser shall submit monthly written progress reports to U S EPA concerning actions undertaken pursuant to this SOW and the Consent Decree. These brief reports shall describe all significant developments during the preceding period, including the work performed, copies of any draft or validated data in electronic form (text files for text and spreadsheets for numeric data), any problems encountered, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Task 9 Project Meetings

Throughout the RI/FS process, Weyerhaeuser shall meet with U S EPA in person or via conference call to help facilitate communications and/or streamline progress. These meetings may be scheduled as requested by either party, and the schedule may be subject to change upon approval by U S EPA, but suggested milestones include:

Task 1/2 Prior to submission of the RI/FS Work Plan, to discuss the integration of the reasonably anticipated future land use(s) into the data evaluation and proposed data collection activities as part of an overall site management strategy.

Task 3 After samples have been collected and data obtained, validated and preliminarily reviewed but prior to submission of the RI Report.

Task 6 After development of the RAOs and identification of alternatives but prior to completion of the detailed alternatives analysis.

Task 10 Community Involvement Support

U S EPA has the responsibility of developing and implementing community relations activities for the Mill. The critical community relations planning steps performed by U S EPA include conducting community interviews and developing a Community Involvement Plan. Although implementing the Community Involvement Plan is the responsibility of U S EPA, Weyerhaeuser, if directed by U S EPA, shall assist by providing information regarding the Mill's history, participating in public meetings, or conducting other activities approved by U S EPA. In addition, Weyerhaeuser will provide additional information to the City for use in its community communication process. Weyerhaeuser shall consult with U S EPA prior to conducting community

involvement activities, and to the extent feasible shall coordinate such activities with those of U S EPA Weyerhaeuser shall briefly summarize its community involvement activities in the monthly progress reports

**SCHEDULE FOR MAJOR DELIVERABLES
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
PLAINWELL INC MILL PROPERTY
CITY OF PLAINWELL, MICHIGAN**

Deliverable	Deadline
Task 1 Draft RI/FS Work Plan	Within 45 days of U S EPA s notification to Weyerhaeuser that the SOW has been approved in its final form
Task 1 Initial Site Management Strategy Update	Within 21 days of U S EPA's receipt of the draft RI/FS Work Plan
Task 1 Final RI/FS Work Plan	30 days after receipt of U S EPA comments on draft Work Plan
Task 2 Draft Sampling and Analysis Plan	Concurrent with submittal of the Draft RI/FS Work Plan (Task 1)
Task 2 Final Sampling and Analysis Plan	30 days after receipt of U S EPA comments on draft Sampling and Analysis Plan
Task 3 Remedial Investigation	Within 14 days of U S EPA approval of Final SAP
Provide Analytical Data of Each Sampling Activity	Within 45 days of receipt of validated analytical data
Notification of Completion of Field Activities	Within 7 days of completion of field activities
Task 4 Draft RI Report	Within 90 days of the receipt of the validated data
Task 4 Final RI Report	30 days after receipt of U S EPA comments on draft RI Report
Task 5 Draft Remedial Action Objectives Technical Memorandum	If needed, 45 days after U S EPA approval of Final RI Report
Task 5 Final Remedial Action Objectives Technical Memorandum	If needed, 30 days after receipt of U S EPA comments on draft Remedial Action Objectives Technical Memorandum

Task 6 Draft Alternatives Screening Technical Memorandum	If needed, 60 days after U S EPA approval of Remedial Action Objectives Tech Memorandum
Task 6 Final Alternatives Screening Technical Memorandum	30 days after receipt of U S EPA comments on draft Alternatives Screening Technical Memorandum
Task 7 Draft Feasibility Study Report	90 days after U S EPA approval of Alternatives Screening Technical Memorandum or the Remedial Action Objectives Tech Memorandum
Task 7 Final Feasibility Study Report	30 days after receipt of U S EPA comments on draft FFS Report
Task 8 Progress Reports	15 th business day of the month commencing 30 calendar days after U S EPA s notification to Weyerhaeuser that the SOW has been approved in its final form
Task 9 Project Meetings	As requested by either party